

SOFT PARTICLES IN GRANULAR MATERIALS, SUSPENSIONS AND OTHER COMPLEX FLUIDS

1000 - MANUFACTURING AND MATERIALS PROCESSING

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ABSTRACT

Soft and strongly deformable particles play a central role in a wide range of biological systems, food applications, as well as other industrial production processes. Predicting how these particles flow as part of a granular material, suspension, or other complex fluids is important, however, it is still a challenging task. Currently, models and computational methods are lacking to fully account for the rich physics inherent to these materials. Consequently, experimental observations [1] of particle deformation and flow, together with extensive calibration procedures are necessary to make available computer models useful.

The objective of this minisymposium is to bridge the gap between experimentalists, theoreticians, and the computational mechanics community interested in the physics of soft and strongly deformable particles. A core focus is on particle-based methods (e.g., the Discrete Element Method, DEM), as well as the combination of DEM with Computational Fluid Dynamics (CFD) [2]. Also, contributions detailing calibration procedures for parameters in DEM and CFD-DEM-based models are in the focus of this minisymposium.

The minisymposium welcomes contributions from the field of (i) powder, food and suspension engineering, (ii) computational suspension dynamics, (iii) experimental soft matter physics, as well as (iv) complex fluids, all in the context of systems involving soft particles.

REFERENCES

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